

Reply To: 3420

Date: FEB 24 1986

Subject: Biological Evaluation of Western Spruce Budworm
on the Alpine Ranger District

To: Forest Supervisor, Apache-Sitgreaves National Forests

On September 24 and 25, 1985, Don Owen, Entomologist, and Tom Legard, Biological Technician, conducted an egg mass and defoliation survey of areas defoliated by the western spruce budworm on the Alpine RD. The purpose of the survey was to corroborate and expand upon initial observations and recommendations made during the summer (refer to 3420 letter dated July 29, and 3410 letter dated August 27, 1985). Eleven 3-tree clusters (or plots) were sampled for budworm egg masses; defoliation estimates were made on five of these plots (see enclosed map).

Results

Based on aerial survey, approximately 3,000 acres of forest were determined to be defoliated by the budworm on the District. Ground checks confirmed the presence of defoliation in all areas so mapped, although additional acreage of less visible defoliation also exists.

Because of the limited number of egg mass and defoliation plots sampled, results will be discussed in terms of the entire infestation, rather than individual areas. Number of egg masses per square meter of foliage ranged from 0 to 22.6 with a mean of 8.6 (see enclosed Table). Based on information presented by McKnight et al. (1970)¹, these results indicate that next year's defoliation will range from light to moderate² in most areas.

Defoliation estimates of current year's growth from five plots ranged from 16.5 to 58.7 percent with a mean of 39.8 percent (see Table), which is in the lower range of the moderate category. This average should not be directly compared with estimates made during the aerial survey, since aerial survey estimates are subjective and are intended to be a relative guide only. Additionally, estimates made during aerial surveys account for all visible defoliation not just foliage from the current year.

¹ McKnight, M.E., J.F. Chansler, D.B. Cahill, and H.W. Flake, Jr. 1970. Sequential plan for western spruce budworm egg mass surveys in the central and southern Rocky Mountains. USDA For. Serv. Res. Note RM-174. 5 p.

² Light = 5 to 35 percent defoliation of current year's growth
Moderate = 35 to 65 percent

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The current outbreak on the Alpine RD will probably intensify and expand slightly in 1986, but we do not anticipate any large areas of heavy defoliation. Relative to other areas in the Region where budworm outbreaks are occurring, defoliation on the Alpine RD is slight.

Recommendations

We would like to commend the Forest for pursuing silvicultural treatments to control the budworm in planned timber sale areas, e.g. Double Sale and South McKibbins Sale areas (3420 letter dated October 10, 1985). Under current conditions, this is the appropriate course of action. Forest Pest Management will continue to monitor the infestation through aerial, egg mass, and defoliation surveys, and make annual predictions on the course of the infestation. This information will help Forest personnel determine the impacts of the outbreak on management objectives and assist in developing appropriate management alternatives.

Silvicultural treatments are a long-term budworm management approach. In order to be effective, these treatments must be used as a preventative measure, and should be part of an area-wide plan which prioritizes treatment areas based on such things as susceptibility, timber or other values, and ease of treatment. We suggest that silvicultural treatments be initiated in highly susceptible stands before serious damage has occurred. Such treatments will not significantly influence the course of the current outbreak, but they may help protect individual stands from damage and mitigate the impacts of future outbreaks.

In addition to the above, we suggest that the Forest develop short-range management alternatives addressing the current budworm outbreak. The best approach to this task is to initiate an environmental analysis to determine potential or projected outbreak impacts to planned resource outputs or management objectives and to formulate appropriate management alternatives. Such an analysis with appropriate documentation could be tiered to the Forest Plan, and should consider the impacts of pests such as mistletoes, root diseases, and bark beetles, in addition to the budworm. This approach should provide a comprehensive integrated view of existing and potential pest problems and preferred management alternatives.

As suggested by Forest personnel, it would be useful to schedule annual meetings among the District, Forest, and FPM to discuss the results and implications of damage assessment surveys, egg mass counts, and other projects. We look forward to working cooperatively with the District and Forest on this and other forest pest situations of concern.

DOUGLAS L. PARKER

DOUGLAS L. PARKER
Director of Forest Pest Management

Enclosures (2)

cc:
DRF, Resources
DRF, S&PF
WO
TM

D.Owen:dtk:1-15-86
Rewritten:D.Owen:dtk:1-28-86
Rewritten:L.Linnane:dtk:2-11-86

WESTERN SPRUCE BUDWORM EGG MASS AND DEFOLIATION ESTIMATES

ALPINE RANGER DISTRICT
APACHE NATIONAL FOREST
SEPTEMBER 1985

<u>Plot</u>	<u>Egg Masses/Square Meter</u>	<u>Percentage Defoliation</u> ¹
1	6.5	16.5
2	4.9	
3	0	
4	5.5	24.3
5	1.5	
6	22.6	57.2
7	0	
8	14.5	58.7
9	17.7	
10	1.6	
11	<u>19.7</u>	<u>42.4</u>
Mean	<u>8.6</u>	<u>39.8</u>
Standard Error	<u>2.5</u>	<u>8.5</u>

¹Current year's growth, 6-class system.

ALPINE BLACK RIVER RANG DISTRICT APACHE NATIONAL FOREST ARIZONA

1972

Scale

1 1/2 0 1 2 3 4 5 Miles

LEGEND

----- Ranger District Boundary

----- National Forest Land

